UNITED STATES PATENT AND TRADEMARK OFFICE

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10/791,544	03/03/2004	Song-yean Cho	Q79871	3298

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EXAMINER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>03 March 2004</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-27* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☐ Claim(s) *1-13,15,17-21,25 and 26* is/are rejected.

7) ☐ Claim(s) *14,16,22-24 and 27* is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All b) ☐ Some * c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>04/06/2006</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2.   Claims 1-4, 6-9, 11-13, 15-17, 19-21 and 25 are rejected under 35

U.S.C. 102(e) as being anticipated by Rhee (US 2003/0099221 A1).

For claim 1 Rhee discloses a system for reliably broadcasting a data

packet under an ad-hoc network environment, the system comprising (see

paragraph 0007 lines 1-4 on page 1 in Summary); a comparing unit

operable to compare (see paragraph 0067 lines 1-7 on page 5 in

Description); a first relay node sequence number with a second relay node

sequence number (see paragraph 0009 lines 1-7 on page 1 in Summary);

the first relay node sequence number being contained in a management

packet transmitted by at least one node receiving the data packet (see

paragraph 0049 lines 1-9 on page 3 and paragraph 0050 lines 1-4 on

page 4 in Description); the second relay node sequence number being

stored in a neighbor table of the at least one node (see paragraph 0068

lines 4-7 on page 5 in Description) and a control unit operable to determine whether or not the data packet is retransmitted to the node according to a result of the comparison (see paragraph 0068 lines 1-4 on page 5 in Description)

For claim 2, Rhee discloses wherein the control unit transmits the data packet, wherein after adding "1" to the second relay node sequence number, the resulting sequence number is included in the data packet (see paragraph 0061 lines 1-5 on page 4 in Description).

For claim 3, further comprising a memory unit which includes the neighbor table drafted on the basis of information of the management packet transmitted from the at least one node (see paragraph 0052 lines 4-9 on page 4 in Description).

For claim 4, Rhee discloses wherein the data packet includes at least one of Internet protocol addresses of neighboring nodes, relay nodes, link status, and relay node sequence numbers (see paragraph 0081 on page 6 lines 1-4 and paragraph 0082 lines 1-6 on page 6 in Description).

For claim 6, Rhee discloses a system for reliably broadcasting a data packet under an ad-hoc network environment, the system comprising (see paragraph 0007 lines 1-4 on page 1 in Summary); a determining unit

operable to determine whether or not at least one node that receives the

data packet is a relay node which transmits the received data packet to

other neighboring nodes (see paragraph 0066 lines 1-8 on page 5 in

Description); a comparing unit operable to compare (see paragraph 0067

lines 1-7 on page 5 in Description); a first relay node sequence number

with a second relay node sequence number (see paragraph 0009 lines 1-7

on page 1 in Summary); the first relay node sequence number being

contained in a management packet which the node that receives the data

packet transmits (see paragraph 0049 lines 1-9 on page 3 and paragraph

0050 lines 1-4 on page 4 in Description); the second relay node sequence

number being stored in a neighbor table of the at least one node (see

paragraph 0068 lines 4-7 on page 5 in Description) and a control unit

operable to determine whether or not the data packet is retransmitted to

the at least one node according to a result of the comparison (see

paragraph 0068 lines 1-4 on page 5 in Description)

For claim 7, Rhee discloses wherein the control unit transmits the data

packet, wherein after adding "1" to the second relay node sequence

number, the resulting sequence number is included in the data packet

(see paragraph 0061 lines 1-5 on page 4 in Description).

For claim 8, further comprising a memory unit which includes the neighbor

table drafted on the basis of information of the management packet

transmitted from the at least one node (see paragraph 0052 lines 4-9 on

page 4 in Description).

For claim 9, Rhee discloses wherein the data packet includes at least one

of Internet protocol addresses of neighboring nodes, relay nodes, link

status, and relay node sequence numbers (see paragraph 0081 on page 6

lines 1-4 and paragraph 0082 lines 1-6 on page 6 in Description).

For claim 11, Rhee discloses a method for reliably broadcasting a data

packet under an ad-hoc network environment, the method comprising (see

paragraph 0007 lines 1-4 on page 1 in Summary); broadcasting the data

packet to neighboring nodes (see paragraph 0055 lines 2-8 on page 4 in

Description); comparing a first relay node sequence number with a second

relay node sequence number (see paragraph 0067 lines 1-7 on page 5 in

Description); the first relay node sequence number being contained in a

management packet which each of the neighboring nodes transmits (see

paragraph 0049 lines 1-9 on page 3 and paragraph 0050 lines 1-4 on

page 4 in Description); the second relay node sequence number being

stored in a neighbor table of each of the neighboring nodes (see

paragraph 0068 lines 4-7 on page 5 in Description) and determining

whether or not the data packet is retransmitted to the neighboring nodes

according to a result of the comparison (see paragraph 0068 lines 1-4 on

page 5 in Description).

For claim 12, Rhee discloses wherein the step of broadcasting comprises:
adding "1" to the second relay node sequence number which is stored in
the neighbor table of each of the neighboring nodes (see paragraph 0061
lines 1-3 on page 4 in Description); adding the resulting relay node
sequence number and predetermined information to the data packet (see
paragraph 0061 lines 3-5 on page 4 in Description); storing information of
the data packet in the neighbor table (see paragraph 0068 lines 4-7 on
page 5 in Description) and broadcasting the data packet to the
neighboring nodes (see paragraph 0055 lines 2-8 on page 4 in
Description).

For claim 13, Rhee discloses wherein the step of comparing comprises:
receiving the management packet from the neighboring nodes (see
paragraph 0050 lines 5-9 on page 4 in Description); comparing the first
relay node sequence number contained in the received management
packet with the second relay node sequence number (see paragraph 0067
lines 1-7 on page 5 in Description) and stored in the neighbor table of
each of the neighboring nodes (see paragraph 0068 lines 4-7 on page 5 in
Description).

For claim 15, Rhee discloses wherein a number of times for retransmitting
the data packet is set to a predetermined number of times, and when the

number of times the data packet has been retransmitted exceeds the set

number of times, retransmitting the data packet is stopped (see paragraph

0073 lines 1-9 on page 5 in Description).

For claim 17, Rhee discloses wherein the data packet includes at least

one of Internet protocol addresses of neighboring nodes, relay nodes, link

status, and relay node sequence numbers (see paragraph 0081 on page 6

lines 1-4 and paragraph 0082 lines 1-6 on page 6 in Description).

For claim 19, Rhee discloses a method for reliably broadcasting a data

packet under an ad-hoc network environment, the method comprising (see

paragraph 0007 lines 1-4 on page 1 in Summary); checking whether at

least one node operable to receive the data packet is a relay node (see

paragraph 0066 lines 1-8 on page 5 in Description); as a result of

checking, when the node is a relay node, broadcasting the data packet to

neighboring nodes (see paragraph 0081 lines 1-4 on page 6 in

Description); comparing a first relay node sequence number with a second

relay node sequence number (see paragraph 0067 lines 1-7 on page 5 in

Description); the first relay node sequence number being contained in a

management packet which each of the neighboring nodes transmits (see

paragraph 0049 lines 1-9 on page 3 and paragraph 0050 lines 1-4 on

page 4 in Description); the second relay node sequence number being

stored in a neighbor table of each of the neighboring nodes (see

paragraph 0068 lines 4-7 on page 5 in Description) and determining

whether or not the data packet is retransmitted to the neighboring nodes

according to a result of the comparison (see paragraph 0068 lines 1-4 on

page 5 in Description).

For claim 20, Rhee discloses the method according to claim 19, wherein

the step of broadcasting comprises: adding "1" to the second relay node

sequence number which is stored in the neighbor table of each of the

neighboring nodes (see paragraph 0061 lines 1-3 on page 4 in

Description); adding the resulting relay node sequence number and

predetermined information to the data packet (see paragraph 0061

lines 3-5 on page 4 in Description); storing information of the data packet

in the neighbor table (see paragraph 0068 lines 4-7 on page 5 in

Description) and broadcasting the data packet to the neighboring nodes

(see paragraph 0055 lines 2-8 on page 4 in Description).

For claim 21, Rhee discloses wherein the step of comparing comprises:

receiving the management packet from the neighboring nodes (see

paragraph 0050 lines 5-9 on page 4 in Description); comparing the first

relay node sequence number contained in the management packet which

each of the neighboring nodes transmits, with the second relay node

sequence number (see paragraph 0067 lines 1-7 on page 5 in

Description) stored in the neighbor table of each of the neighboring nodes.

(see paragraph 0068 lines 4-7 on page 5 in Description).

For claim 25, Rhee discloses wherein the data packet includes at least

one of Internet protocol addresses of neighboring nodes, relay nodes, link

status, and relay node sequence numbers (see paragraph 0081 on page 6

lines 1-4 and paragraph 0082 lines 1-6 on page 6 in Description).

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described
> as set forth in section 102 of this title, if the differences between the subject matter sought to
> be patented and the prior art are such that the subject matter as a whole would have been
> obvious at the time the invention was made to a person having ordinary skill in the art to which
> said subject matter pertains. Patentability shall not be negatived by the manner in which the
> invention was made.

4.   The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1,

148 USPQ 459 (1966), that are applied for establishing a background for

determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at
        issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating
        obviousness or nonobviousness.

5.   This application currently names joint inventors. In considering

patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that

the subject matter of the various claims was commonly owned at the time any

inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor

and invention dates of each claim that was not commonly owned at the time a

later invention was made in order for the examiner to consider the applicability of

35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35

U.S.C. 103(a).

6.   Claims 5,10,18 and 26 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Rhee (US 2003/0099221 A1) in view Madruga et al.

> For claim 5, 10, 18 and 26, Rhee discloses all the claim limitations as
>
> recited in paragraph 2 of this office action with the exception of wherein
>
> the neighbor table is updated on the basis of the information of the
>
> management packet each of a predetermined number of times as recited
>
> in claims 5, 10, 18 and 26. Madruga et al. in the same or similar field of
>
> endeavor teaches wherein the neighbor table is updated on the basis of
>
> the information of the management packet each of a predetermined
>
> number of times (see column 9 lines 26-41 in Detailed Description of the
>
> Invention).
>
> It would have been obvious to one of ordinary skill in the art at the time of
>
> invention was made to use the same method for updating the neighbor
>
> table as taught by Madruga et al. in the communication network of Rhee.
>
> The updating of neighbor table based on the information or messages
>
> being received form the neighboring nodes as taught by Madruga et al.
>
> can be modified/implemented by enhancing processor functionalities of

each node to maintain the data of the neighbors for an ad hoc network environment like the communication network of Rhee. The nodes or routers normally maintain the routing tables, which is continuously being updated with the messages being received from the neighbors. The nodes will be programmed in the same way to keep updating their neighbor tables to include the information of sequence numbers of the neighboring relay nodes for comparison to make the decision to retransmit the packets or to terminate the link. The motivation for updating of the neighbor able is to provide an efficient and accurate function of comparison of relay node sequence number in an ad hoc network environment.

Allowable Subject Matter

7.   Claims 14, 16, 22-24 and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,493,767 B1 (Ishida et al.), US 7,002,944 B2 (Kats et al.), US 7,002,964 B1 (Ohnishi et al.), US 7,058,071 B1 (Myles et al.), US 2004/0008652 A1 (Tanzella et al.), US 2004/0213167 (Garcia-Luna-Aceves et al.) and US 7,042,852 B2 (Harstar).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Syed Bokhari whose telephone number is (571) 270-3115. The examiner can normally be reached on Monday though Friday from 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton can be reached on (571) 272-3171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DANG T. TON
SUPERVISORY PATENT EXAMINER